



## **I. INVENTION TITLE:**

Changed: "VIRTUAL ENVIRONMENT ON THE WEB" to "MULTI PLATFORM VIRTUAL ENVIRONMENT WITH STANDARD JAVA"

## **II. CROSS REFERENCE TO RELATED APPLICATIONS**

Added:

1. United states patent #6,268,872, Matsuda, et al
2. United states patent # 6,426,752, Goden

## **III. BACKGROUND-DESCRIPTION OF PRIOR ART**

Changed:

*Paragraph 1:* Changed "web" to "Internet"

Deleted:

*Paragraph 2:* Commercial e-commerce sites use said common interfaces to interact with users. Said users use interfaces to purchase goods and services.

Added:

*Paragraph 2:* Surfing on the Internet is generally accomplished using a browser to view web pages that uses conventional user interfaces. The controls are usually limited to standard user interfaces comprising buttons, checkboxes, combo boxes, and other conventional user interface elements.

*Paragraph 3:* Virtual reality games have been around for many years. Many of these games are multi-player games that can use computer networks and allow several users to interact. However, they use fat/thick client structure in which users have to obtain a special software, then install and execute the special software in their computers. Due to its complexity, the size of this kind software is usually very big, which is not convenient for users, especially those with slow Internet connection. Moreover, downloading and running software from questionable sources may be a security risk/harmful. Additionally, many versions of the special software have to be built to support various

operating systems (Windows 98, Windows NT, Linux, Mac OS) and hardware platform (PC, Macintosh, Console).

*Paragraph 4:* United States Patent No. 6,268,872 discloses a Virtual Reality environment representation with VRML. Although VRML technology provides means for displaying a virtual reality user interface, it requires a special browser or browser plug in to be functional. User should download and install the special browser or browser plug-in first, and in a networking environment the user may not be able to do it without a special authorization from the network administrator. Moreover, the VRML data files are usually huge and users with slow Internet connection will not be able to view the virtual reality interface conveniently.

*Paragraph 5:* United States Patent No. 6,426,752 discloses a game device permits generation of images of objects moving through a virtual space. Although this technology provides means for displaying a virtual reality user interface, it requires a special game device to be functional.

*Paragraph 6:* This patent application describes a system to display virtual reality websites or virtual reality environment with standard Java (applets). Since Java is a widely-accepted standard in many platform and has built-in security system, the system described in this patent application allows the development of safe cross-platform virtual reality environments without any other proprietary software plug-in. Any computer system with the ability to connect to a network (including the Internet) and run a Java-enabled browser can view virtual reality websites or virtual reality environments developed using the system described in this patent application.



#### IV. SUMMARY OF THE INVENTION

Changed:

*Paragraph 1:* "Net" to "Internet"

Added:

*Paragraph 3:* "Java applets"

Changed:

*Paragraph 6*

#### V. Objects and Advantages

Deleted:

*Paragraph 1:* This invention has some advantages over traditional web surfing techniques: more fun to use and easier to visualize.

Added:

*Paragraph 1:* This invention has some advantages over traditional fat-client approach of displaying a virtual reality environment:

1. user does not need to obtain or download and execute a client-side program
2. user does not need to run or execute a client-side program that can be a security risk.
3. this invention uses JAVA which has a built-in security system and possesses virtually no security risk.
4. this invention uses JAVA which is a widely accepted standard and can be run by virtually any computer system with the appropriate hardware and a Java virtual machine.

*Paragraph 2:* Moreover, this invention has some advantages over VRML approach of displaying a virtual reality environment:

1. user does not need to install a special browser or browser plug-in to display a virtual reality environment built with methods described in this patent application.
2. depending on the number and the size of its textures, a website with a virtual reality environment built with methods described in this patent application can be made much smaller and/or require much less computational power than the VRML approach.

## **VI. DETAILED DESCRIPTIONS OF THE PREFERRED EMBODIMENTS**

### **Changed:**

*Paragraph 2:* “The system” to “The virtual environment system proposed in this patent application.

### **Added:**

*Paragraph 2:* HTML pages that can be displayed with said system comprise regular html pages comprise user verification (75) and user interaction (76) and html pages running the virtual environment system and displaying various kinds of websites comprising E-Commerce websites (72), On-line game websites (73), or even common websites (74).

*Paragraph 3:* The sample source code and/or object code and database files included with the patent application uses Java applets and scripts on the client side and ASP server-side scripts/codes running on a web server on the server side. When a user accesses a website built with the proposed system, the server-side codes build a web page dynamically by including a reference to the Java applets and dynamically embedding all the data required by the applet, comprising map data and link data (which are different for each part/area of a virtual environment). The Java applets access the dynamically created embedded data to create and display the virtual environment and do not need to communicate with the server anymore until the user accesses another part of the virtual environment.